

WHAT IS CLAIMED IS:

1. A method for surface treatment of a plastic article, comprising a step of immersing
said plastic article in an aqueous solution of a polymer having a weight average
5 molecular weight of 200 or more.
2. A method for surface treatment of a plastic article according claim 1, wherein said
step further comprising:
immersing in an aqueous solution of a second polymer having a weight average
10 molecular weight of 200 or more.
3. A method for surface treatment of a plastic article according to Claim 1 or 2,
wherein said plastic article is hydrogel.
- 15 4. A method for surface treatment of a plastic article according to Claim 3, wherein
said plastic article has water content greater than 15%.
5. A method for surface treatment of a plastic article according to Claim 3, wherein
said hydrogel comprises at least one of a silicon atom and a fluorine atom.
20
6. A method for surface treatment of a plastic article according to Claim 5, wherein
said hydrogel has oxygen permeability coefficient greater than 50×10^{-11} (cm²/sec)
[mlO₂/(ml· hPa)].
- 25 7. A method for surface treatment of a plastic article according to Claim 1 or 2,
wherein said plastic article is a macromolecule substantially not containing water.
8. A method for surface treatment of a plastic article according to one of Claim 1 or 2,
comprising a step of immersing said plastic article in an aqueous solution having a
30 pH of 6 or less.

9. A method for surface treatment of a plastic article according to one of Claim 1 or 2, wherein said polymer having the weight average molecular weight of 200 or more is a carboxyl functional polymer.

5

10. A method for surface treatment of a plastic article according to Claim 9, wherein said carboxyl functional polymer is a polymer selected from the group consisting of polymethacrylic acid, polyitaconic acid, and a copolymer of methacrylic acid, maleic acid, itaconic acid, or maleic anhydride and a reactive vinyl monomer, or a mixture thereof.

10

11. A method for surface treatment of a plastic article according to one of Claim 1 or 2, comprising a step of immersing said plastic article in an aqueous solution having a pH of 8 or higher.

15

12. A method for surface treatment of a plastic article according to Claim 1 or 2, wherein said polymer having the weight average molecular weight of 200 or more is a polyethyleneimine.

20

13. A method for surface treatment of a plastic article according to Claim 2, wherein said second polymer having the weight average molecular weight of 200 or more is a nonionic water-soluble polymer.

25

14. A method for surface treatment of a plastic article according to Claim 13, wherein said nonionic water-soluble polymer is a polymer selected from the group consisting of polyacrylamide, polydimethylacrylamide, polyvinyl pyrrolidone, polyethylene glycol, polyethylene oxide, and polyvinyl alcohol, or a mixture thereof.

BEST AVAILABLE COPY

30

15. A surface-treated plastic article comprising a thin layer of a polymer complex on

the surface of said surface-treated plastic article, wherein the polymer complex is formed with a polymer having a weight average molecular weight of 200 or more and a base material.

- 5 16. A surface-treated plastic article according to claim 15, wherein the thin layer further comprises a second polymer complex formed with the second polymer having a weight average molecular weight of 200 or more and said first polymer having the weight average molecular weight of 200 or more.
- 10 17. A surface-treated plastic article according to Claim 15 or 16, wherein said plastic article is hydrogel.
18. A surface-treated plastic article according to Claim 17, wherein said hydrogel comprises at least one of a silicon atom and a fluorine atom.
- 15 19. A surface-treated plastic article according to Claim 18, wherein said hydrogel has water content greater than 15%.
- 20 20. A surface-treated plastic article according to Claim 19, wherein said hydrogel has oxygen permeability coefficient greater than $50 \times 10^{-11} (\text{cm}^2/\text{sec}) [\text{mlO}_2/(\text{ml} \cdot \text{hPa})]$.
21. A surface-treated plastic article according to Claim 15 or 16, wherein at least one of said polymers having the weight average molecular weight of 200 or more is a carboxyl functional polymer.
- 25 22. A surface-treated plastic article according to Claim 21, wherein said carboxyl functional polymer is a polymer selected from the group consisting of polymethacrylic acid, polyitaconic acid, and a copolymer of methacrylic acid, maleic acid, itaconic acid or maleic anhydride and a reactive vinyl monomer, or a mixture thereof.
- 30

23. A surface-treated plastic article according to Claim 15 or 16, wherein said surface-treated plastic article exhibits absorptions at 1720 cm^{-1} band, 1404 cm^{-1} to 1442 cm^{-1} band, and 1556 cm^{-1} band in the infrared absorption spectrum based on an attenuated total reflection spectroscopy.

24. A surface-treated plastic article according to Claim 16, wherein said second polymer having the weight average molecular weight of 200 or more is a nonionic water-soluble polymer.

10

25. A surface-treated plastic article according to Claim 24, wherein said nonionic water-soluble polymer is a polymer selected from the group consisting of polyacrylamide, polydimethylacrylamide, polyvinyl pyrrolidone, polyethylene glycol, polyethylene oxide, and polyvinyl alcohol, or a mixture thereof.

15

26. A surface-treated plastic article according to Claim 19, wherein said polymer having the weight average molecular weight of 200 or more is polymethacrylic acid, and said surface-treated plastic article is a contact lens containing at least one of a silicon atom and a fluorine atom.

20

27. A surface-treated plastic article according to Claim 26, wherein said contact lens has oxygen permeability coefficient greater than $50 \times 10^{-11} (\text{cm}^2/\text{sec})[\text{mlO}_2/(\text{ml} \cdot \text{hPa})]$.